# Epi Notes

North Carolina Department of Health and Human Services ◆ Division of Public Health

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## NEDSS Project Moving Forward

*Prepared by Allison Connolly, MA, MPH, NEDSS Project Coordinator, General Communicable Control Branch*

The Division of Public Health is progressing with plans to implement a CDC-compliant NEDSS (National Electronic Disease Surveillance System) for North Carolina. The project is spearheaded by the Information Technology Branch of DPH, with major input from the General Communicable Disease Control Branch. It is funded through Focus Area E (Information Technology) of the CDC Cooperative Agreement for Public Health Preparedness and Emergency Response for Bioterrorism.

NEDSS is the second major component of North Carolina's emerging Public Health Information Network (PHIN). It will be fully integrated with the PHIN's other component, the North Carolina Health Alert Network (NCHAN). This integration will mean that, like NCHAN, NEDSS will operate on a 24/7/365 schedule with complete system redundancy.

Overseen by the Centers for Disease Control and Prevention (CDC), NEDSS is a broad national effort to standardize and integrate the collection of public health data. Presently, CDC and the fifty states collectively maintain numerous surveillance and health information systems. These systems often collect some of the same data elements as other systems or programs. However, due to different data formats or data element definitions, the information contained within each system is difficult or even impossible to integrate with information from other data systems. NEDSS will enhance public health surveillance by integrating both surveillance and health information systems, and by creating national standards for electronic exchange of information

States will be required to report NEDSS-compliant surveillance data to CDC. To do so, states may choose to adopt the CDC-developed NEDSS (known as the NEDSS Base System or NBS), create their own NEDSS system, adopt a system developed by another state, or purchase one of several systems available from private companies.

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## Eliminating Syphilis in North Carolina: A Sucess Story in the Making

*Prepared by Jan Scott, N.C. Syphilis Elimination Project Coordinator, HIV/STD Prevention and Care Branch*

The North Carolina Syphilis Elimination Project (NCSEP) began in 1998 when 28 counties across the nation were identified as reporting more than 50 percent of the nation's morbidity for infectious syphilis. North Carolina was the only state with five counties – Forsyth, Guilford, Mecklenburg, Robeson and Wake – on that list; these counties were designated as High Morbidity Areas, or HMAs, and received financial and technical support from CDC and from the HIV/STD Prevention and Care Branch. The NCSEP strives to reduce primary and secondary syphilis through community involvement, surveillance, rapid outbreak response, and health promotion. Because community involvement is crucial to the success of the project, 30 percent of the grant award is designated for use in community-based organizations. Since 1998, the number of infectious syphilis cases have declined by 79 percent. This dramatic decrease was accomplished by the efforts of all of North Carolina's HMAs.

Why is it important to eliminate syphilis in North Carolina?

First, in 2003 North Carolina ranked 14th in the nation, reporting 150 cases of infectious syphilis and a rate of 1.8 per 100,000 population. Guilford County ranked 40th on the national list of the top 50 counties reporting.

Second, eliminating syphilis will help to reduce racial disparities in health. The gap is narrowing on racial disparities for African Americans, yet they continue to be disproportionately affected by syphilis; 74 percent of all North Carolina cases were in the African American community in 2003.

Third, eliminating syphilis will help to decrease the spread of HIV infection. Syphilis increases HIV transmission at least 2- to 5-fold.

Finally, eliminating syphilis will help improve infant health. Syphilis can be transmitted from mother to fetus during pregnancy, causing stillbirths or congenital infections, some of which may result in persistent health problems. North Carolina reported 19 cases of congenital syphilis in 2003.

North Carolina has responded to the challenge of eliminating syphilis in several innovative ways. One was by conducting a legislative conference in the fall of 2004. The conference, "Community Health Planning for Policy Makers: Syphilis Elimination by 2005," was held in order to provide a way for policymakers and public health professionals to get acquainted with SEP successes and challenges and to develop county action plans. Nine state legislators and other policymakers attending this conference shared their expertise and gave input leading to new ideas in the way HMAs addressed the syphilis elimination challenge in their counties. HMAs have responded effectively to this challenge as indicated by the following examples:

Forsyth County conducted health education programs at the Wake Forest University School of Medicine. The first class presentation, titled "Sex in the City", was provided to an audience of 26 health professionals. An article titled "Bad Blood" was printed for the WFU Department of Obstetrics and Gynecology's newsletter, the "Perinatal Post."

Robeson County developed and secured funding for the "My Fair Lady" project to reduce the number of sexually transmitted diseases by reducing the number of commercial sex workers. It contains three key components – recruitment, rehabilitation and reintroduction into society. The Health Department will partner with six community agencies on this project.

Wake County designed the "Pocket Guide to the Transmission, Signs, Symptoms and Prevention of Sexually Transmitted Diseases" which has become a nationally recognized outreach guide.

NCSEP developed "VOICES II: Views Offered in Communities Eliminating Syphilis," in 2003. It is the second summary assessment of the perceptions of nearly 300 community members and providers on syphilis. This document was distributed to constituents and policy makers in 2004 and is on the web at www.epi.state.nc.us/epi/hiv/Syphilis Elimination.htm.

HMA sites conduct syphilis screening in their county jails; screening has increased from one to six county jails during the six years of this project. With increases in the number of jails incorporating the screening program, over 6,000 inmates were tested for syphilis in 2003.

The end result of all of these activities has been a precipitous decline in North Carolina's number of syphilis cases since the inception of the Syphilis Elimination Project on 1998 – down by 79 percent!

For more information contact: Jan Scott, NCSEP Coordinator, at (919)-733-2030. ▲

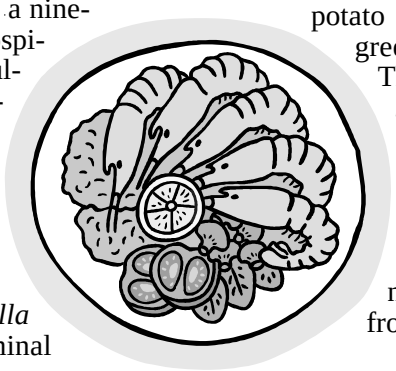
*Shown left to right: Rep. Beverly Earle, Rep. Joanne Bowie, Rep. Maggie Jeffus, Rep. Bill McGee, Rep. Earline Parmon, Sen. Katie Dorsett, Rep. Becky Carney, Rep. Bernard Allen, Sen. Charlie Dannelly at the legislative conference.*

## *Salmonella javiana* Outbreak in Durham, North Carolina

*Prepared by Arlene C. Seña, M.D., M.P.H., Medical Director, Durham County Health Department*

**Introduction**

Food safety is especially important in the summer due to the increased risk of foodborne disease transmission from unrefrigerated or poorly cooked food items served during picnics or barbecues. An outbreak of diarrheal illness was reported on July 1, 2004 to the Durham County Health Department among individuals who had attended a local church picnic on June 26 in Durham. The church picnic, attended by over 200 individuals, had food prepared by a caterer that was neither inspected nor permitted by the Health Department. More than 50 persons were reported to have diarrhea, abdominal cramping, nausea, and fever. Stool samples from 12 individuals who attended the picnic were subsequently found to be positive for *Salmonella* sp., and a nine-year-old child who was admitted to a local hospital was also found to have positive blood cultures for *Salmonella* sp. Serotyping performed at the State Laboratory of Public Health identified *Salmonella javiana* from the stool specimens. Sensitivity testing of the organism revealed that the bacteria was susceptible to ampicillin and ciprofloxacin.



A majority of the individuals with *Salmonella* infections have diarrhea, fever, and abdominal cramps 12-72 hours after exposure. The illness usually lasts 4-7 days, and most recover without treatment. *Salmonella javiana*, the fifth most common *Salmonella* serotype in the United States, has also recently been reported in a large multi-state outbreak of salmonellosis due to contaminated Roma tomatoes served at Sheetz convenience stores.

**Active Surveillance and Cohort Study**

Notification of all potentially exposed individuals was performed by the Durham County Health Department through the distribution of a salmonellosis fact sheet to persons who attended the picnic, telephone contact with some of the symptomatic individuals, and a public media press release. Two blast faxes were also sent to Durham County health care providers, emergency rooms, and urgent care centers to alert them regarding the outbreak, and to notify them of the serotype and susceptibility pattern of the organism. Enhanced surveillance was performed by requesting that local health care providers test symptomatic and epidemiologically-linked patients for salmonellosis, and report all positive *Salmonella* sp. to the Health Department by telephone call. Infection control nurses and public health epidemiologists from local hospitals were also asked to review and report all positive *Salmonella* sp. reports from their hospital laboratories since June 27, 2004 to identify other cases associated with the outbreak.

A retrospective cohort study was conducted. Through the church, Durham County Health Department distributed questionnaires to individuals who attended the picnic, regarding symptoms and food items eaten at the event. One-hundred eighteen self-administered questionnaires were returned. Analysis of the data revealed that 53 individuals (age range 2-83 years of age) who attended the church picnic developed diarrhea, with an incubation period ranging from 6 - 72 hours after the event. Eleven individuals reported other non-specific symptoms including headache, nausea and fever, but not diarrhea. Since approximately 200 people attended the event, the attack rate for diarrhea illness was estimated to be from 25 percent to 45 percent. Using diarrhea as the outcome, relative risks were calculated for the food items that were prepared by the caterer in his home. The estimated relative risks were 29.1 (CI 8.2, 114.4) for the baked beans; 2.6 (CI: 1.1, 6.1) for the pulled pork; 1.7 (CI: 0.7, 4.0) for the chicken; 1.6 (CI: 0.7, 3.8) for the coleslaw; and 1.4 (CI: 0.6, 3.3) for the potato salad.

**Environmental and Molecular Epidemiological Study**

Several food items available from the picnic, including pork, potato salad, green salad, baked beans and mixed greens, were sent to the State Lab for testing. The baked beans were found to be positive for *Salmonella javiana*; all of the other food items tested were negative. Pulse-field gel electrophoresis conducted by the State Lab revealed seven of the positive stool cultures had the identical subtype to the *Salmonella* isolate found in the baked beans. They were not, however, linked to the *Salmonella javiana* from the Sheetz store outbreak.

The caterer had prepared the baked beans from a can, mixed with ground beef. The ground beef was cooked first before the beans were mixed in. There was no indication that the beef was undercooked. The beans were served two to three hours after preparation, during which it was uncertain whether they were kept heated. There were five family members who assisted the caterer. None of them reported prior GI illness nor were symptomatic at the time of the outbreak.

Although no samples of the uncooked ground beef used in the baked beans were available for sampling, this may have been the source of the *Salmonella* found in the food sample. According to one recent survey, five to seven percent of raw ground beef sampled at the retail level is contaminated with *Salmonella* (U.S. Department of Agriculture, Food Safety and Inspection Service, unpublished data, 1994). Other possible sources of the *Salmonella* contamination in the baked beans include asymptomatic (carrier) foodhandlers or cross-contamination with another unknown environmental source.

**Public Health Action**

The illegal caterer was informed of the health law violation, and the Durham County Health Department issued a criminal summons to the caterer for failing to have the required permit to operate as a food service facility. The case is scheduled to be heard in court in October 2004. The media press releases provided by the Health Department emphasized the importance of prevention against foodborne illnesses, and the public health risks associated with illegal caterers. ▲

*(**NEDSS Project Moving Forward**, continued from page 1)*

DPH issued a Request for Proposal (RFP) in July 2004 for a contractor to help define the requirements for NEDSS in North Carolina. Scientific Technologies Corporation (STC) of Tucson, Arizona was awarded this contract and began work in Raleigh on October 4. STC's main task is to assist North Carolina in determining exactly what it would like NEDSS to do. This will involve working with future NEDSS users at the state and local levels. In addition, the vendor will help the state assess its various options for a NEDSS "solution," as listed in the previous paragraph.

A second RFP will be issued in 2005 for a contractor to design, develop, test and implement a NEDSS solution in North Carolina. The work to be completed by the second vendor will be determined by the requirements elicited by the first vendor, as well as the NEDSS solution the state decides to implement.

To ensure user involvement in the NEDSS development process, two workgroups have been formed. A DPH user workgroup, composed of several GCDC employees and a total of five people from the Immunization Branch, HIV Prevention and Care Branch and the State Laboratory, has been meeting since June. Currently, the group is viewing several NEDSS product demonstrations to become educated about the NEDSS solutions available and the functionality they offer. It is hoped that this process will help the group articulate to STC what it would like for NEDSS in North Carolina.

The second workgroup consists of local health department employees. This eleven-member group, which first met Oct. 4, includes a broad spectrum of future NEDSS users from both urban and rural health departments. The group will provide input and feedback to STC and DPH on NEDSS development from a local-health-department perspective.

Please consult future issues of EpiNotes for updates on NEDSS development in North Carolina. If you have any questions or comments, please contact Allison Connolly at 919 715-1642 or Allison.Connolly@ncmail.net. ▲

## Epi-Aid 2004: Risk in Young Adult Black Women in North Carolina

*Prepared by Peter Leone, MD, Medical Director, N.C. HIV/STD Prevention and Care Branch*

The North Carolina Division of Public Health, in partnership with the University of North Carolina Division of Infectious Diseases, described a previously unrecognized epidemic of HIV primarily affecting young African American men who have sex with men (MSM) and men who have sex with men and women (MSM/W) attending college in North Carolina. Cases of HIV in North Carolina college students have been rapidly increasing in number as well as in percent of the total cases among men age 18-30 years since the last half of 2001. The outbreak investigation found a complex student sexual network that extended into five other states in the southeastern United States. College students have not been previously recognized as a group for emerging HIV infection. The only previous related study was published in 1990 and found rates of HIV infection in students attending 19 college/universities (only one of which was located in the southeastern United States) to be lower than rates in the general population.

This investigation was limited to the study of HIV-infected males in North Carolina; however, we found that 40 percent of the HIV-infected male students reported having female sexual contacts in the year prior to their diagnosis. Therefore, there appears to be a genuine potential for spread of HIV infection from male college students to their female partners as well as to the heterosexual college community. Reports have varied on the role that male bisexual behavior may play in driving the heterosexual spread of HIV. These studies have focused on bisexual behavior in urban areas, and it is uncertain if these past studies can be generalized to the North Carolina population, which is half rural (U.S. Census 2000). Previous work has reported that bisexuality may be more prevalent in communities of color because the open expression of homosexuality is limited due to narrowly defined gender roles and community norms. Individuals may identify themselves in public and in private as heterosexual, but engage in sexual relations with both men and women. In response to this data, NCDPH requested further assistance from the Centers for Disease Control and Prevention (CDC) to conduct quantitative and qualitative data collection among young, black women to examine HIV risk factors, risk perceptions and barriers to HIV testing and prevention messages.

*(continued on page 5)*

*(**Epi-Aid 2004**, continued from page 4)*

The incidence of HIV/AIDS has been increasing nationally and in North Carolina since the onset of the HIV epidemic. In 2002 in North Carolina , 31 percent of all newly diagnosed HIV infections were in women. Of these, 79 percent were among black women ages 20-49, with 57 percent reporting heterosexual risk for HIV and 37 percent categorized as unidentified risk (NIR). The geographic distribution of recent HIV infections for black women in North Carolina is limited, with nearly 80 percent of the cases identified in the Mecklenburg (Region II) and Raleigh/Durham (Region IV) regions.

Recently, the "down low" (DL) has been posited as an explanation for the increasing rates of HIV infection among black women. Although the North Carolina college HIV outbreak data suggest a high rate of bisexual activity for the college HIV cases, it is not clear whether these men considered themselves heterosexual, bisexual or homosexual. Even if a significant number of these men fit the DL description (identification as heterosexual but having bisexual activity), there is little scientific data assessing the risk posed by men on the DL to black women. There is also a need to understand HIV behavioral risk factors in sexually active young black women and their sexual partners. Understanding the level of risk to women and the factors contributing to HIV transmission to women is critical for the development of social and personal interventions for women at risk for HIV transmission. To address these issues, the NCDPH and the CDC are conducting an epi-aid investigation including the following activities in Regions II and IV:

1) a case-control study to assess epidemiologic and behavioral differences between newly diagnosed HIV+ and HIV- 18-40 year old black women,

2) a study of male partners of HIV + women, to look for male risk factors for HIV and compare that to the risk preceptions of the female partners, and to examine how relationship dynamics relate to risk preception and activities.

3) qualitative focus groups with HIV+, HIV- , and college women to access perceptions about HIV risk and barriers to HIV testing and sexual risk reduction.

Interviews and focus groups will be completed in late fall of 2004. Preliminary results will be shared with NCDPH community partners, North Carolina health directors and college student health directors by December 2004. Intervention activities and prevention messages will be developed from the epi-aid, specifically targeting women who are at risk for HIV. ▲

## Microbiology Experience in Malawi, Africa

*Prepared by Cami Hartley, CLS (NCA), MT (HEW), MLT (ASCP), Supervisor, Bacteriology Laboratory, Microbiology Unit, N.C. State Laboratory of Public Health*

I recently had the opportunity to provide microbiology laboratory assistance and training in Lilongwe, Malawi.

The project was through grant-funded activities with the University of North Carolina, Chapel Hill (UNC-CH). UNC-CH has numerous ongoing HIV research service programs in the country of Malawi and elsewhere. My former lab director at UNC Hospitals asked if I would be interested in spending a month in the country to provide assistance in creating a microbiology laboratory section at a newly built facility on the grounds of the Lilongwe Central Hospital. This facility, Tidziwe Centre, houses clinics, administrative offices, and lab space that provides for the consolidation of several smaller labs formerly located throughout the city. I was excited to take on this unique challenge.

Microbiology for these HIV programs was previously limited to GC cultures, wet preps, and malaria smears. New equipment was purchased, a negative pressure biosafety cabinet room created, and reagents and media selected in order to perform blood cultures for bacteria and mycobacteria, susceptibility testing and cryptococcal antigen on spinal fluid, and to expand the extent of parasitology testing.

During the months preceding the on-site training, I provided technical support for equipment selection, reagents/media/kits, and appropriate test menus for the organisms of interest in the studies. Once on site, I set up and organized the lab section; tested all products and equipment; trained three Malawian laboratory technicians to do the testing, quality control, and media preparation; and created a complete procedure manual as well as training and competency documentation. Specimen collection, laboratory safety and the proper use of personal protective equipment were also discussed.

While the Tidziwe Centre is a UNC project, the studies and work done there benefit all the people of Malawi (there are an estimated 800,000 living with HIV and 80,000 people deaths annually). These studies provide full medical care to all those screened and enrolled into each study. It is estimated that this takes care of about 30 percent of all persons seeking health care in the various health institutions, reducing the burden on the government by an equal amount.

The experience of living and teaching in this third world country was quite unique. The people are friendly but somewhat oppressed and, of course, very poor. They are eager to learn and are open to new ideas and visitors. While guns are prohibited in Malawi, it is unsafe to venture out alone at night, and businesses are barred and have guards posted. Driving

*(continued on page 6)*

## Test Panel Expands to Benefit Newborns

*Prepared by Shu Chaing, PhD, DABCC Unit Supervisor, Newborn Screening/Clinical Chemistry, N.C. State Laboratory of Public Health*

The North Carolina Newborn Screening Laboratory became one of the leading laboratories in the nation when Tandem Mass Spectrometry screening was implemented in 1999. Since then, North Carolina newborns are screened for over 30 genetic disorders. This year, one more test will be added to our sophisticated newborn screening panel. The new test will screen newborns for Biotinidase Deficiency.

Biotinidase Deficiency is a disorder of biotin recycling. Biotin, a B-vitamin, is not synthesized by the human body and is thus a dietary requirement. Biotin binds covalently to certain apocarboxylases and activates them to perform their proper functions in gluconeogenesis, fatty acid synthesis and amino acid catabolism. Biotinidase is required to remove biotin when the carboxylase is degraded, so that the biotin may be recycled. Patients with Biotinidase Deficiency and no biotin in the diet will develop clinical illness. The symptoms usually include seizures, skin rash, hopotonia, alopecia, conjunctivitis, ataxia and developmental delay. The treatment is simple, inexpensive and highly effective. Symptoms are usually completely reversed by administration of pharmacological doses of biotin before serious neurological sequelae develop.

Biotinidase activity is determined by measuring the color that develops from p-Aminobenzoic Acid (PABA) after PABA is released from Biotinyl-p-Aminobenzote (Biotin-PAB). Samples with Biotinidase activity develop a purple color and samples without Biotinidase activity remain straw-colored.

The deficiency is inherited as an autosomal recessive trait. The homozygotes exhibit no Biotinidase activity, while heterozygotes usually exhibit partial activity. The estimate of complete deficiency is 1 in 112,000 (1 in 85,000 to 145,000) live births, and the incidence of partial deficiency is 1 in 129,000 (1 in 113,000 to 177,000). During our pilot study, we screened 3,116 newborns and identified 3 newborns with partial deficiency, but no complete deficiency. ▲

*(**Microbiology Experience in Malawi**, continued from page 5)*

is also hazardous, as many traffic rules are considered optional by most drivers and pedestrians do not have the right of way. Most Malawians walk or ride ancient bicycles loaded down with wide burdens; therefore, outside the city, drivers usually take the middle of the road and honk frequently. The countryside is mostly farmland and the mountain areas beautiful. Lake Malawi, known as the "calendar lake" because it is 365 miles long and 52 miles wide, is Africa's third largest lake and is a source of water, transport, electricity and food for many Malawians. Wildlife is limited to a few small parks as most animals have been poached out, though domestic dogs are abundant and run free.

The opportunity to go to Africa and provide this important service for the people of Malawi was one of a lifetime and truly an exceptional experience. ▲

## Asbestos is Still a Hazard

*Prepared by Jeff Dellinger, Industrial Hygiene Consultant, Health Hazard Control Unit, Occupational and Environmental Epidemiology Branch*

Asbestos is a naturally occurring rock with marketable mineral properties. This rock is being strip-mined in various countries, but it is no longer mined in the United States. There are six different mineral types of asbestos. The three most common types of asbestos include chrysotile, amosite and crocidolite. The three remaining types of asbestos include anthophyllite, tremolite and actinolite.

Asbestos has some interesting physical properties. It is chemically resistant, especially to acids, and it does not readily burn. It is a poor conductor of electricity and a good heat insulator. Because of its fibrous nature, it provides good flexibility, wear, and friction properties. Asbestos has been used in over 3,000 building materials. Asbestos can be present on the exterior or interior of boilers and duct systems, on steam

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*(**Asbestos is Still a Hazard,** continued from page 6)*

pipes and water pipes; cementitious siding, roofing shingles and ceiling and wall panels; all forms of ceiling tiles; asphalts, adhesives, and felt roofing materials; wallboard or sheetrock; and mud joint compound. Asbestos can be present in sprayed-on or trowelled-on surface materials on walls or ceilings as decorative coatings for soundproofing, or fireproofing metal beams or decking. Asbestos can be present in floor tiles and sheet vinyl floor coverings. Asbestos has also been used in making pipes for transporting drinking water.

Several diseases are associated with exposure to asbestos fibers. In an effort to remove asbestos-containing products from the market, the Environmental Protection Agency (EPA) began what was known as the "ban and phase-out period" during the mid-1970s. Unfortunately, not every asbestos- containing product was banned. Even today, someone may unknowingly purchase a building material from overseas that may contain asbestos. This is because of the North American Free Trade Agreement (NAFTA) and the fact that some other countries have weaker environmental regulations.

Inhalation is the primary route of exposure to asbestos. Individuals can inhale asbestos fibers when the asbestos materials are disturbed and fibers become airborne. An individual can also ingest asbestos fibers when asbestos-containing materials are swallowed. Both exposures can lead to asbestos-related diseases.

Before conducting a renovation or demolition activity at a facility, it is important to determine whether asbestos-containing materials are present and will be disturbed. Asbestos, that has been identified and is in good condition should be left alone and not disturbed. If it will be necessary to disturb the asbestos during a renovation or demolition activity, or if the asbestos has already been damaged from previous events, then the asbestos will need to be removed by individuals properly trained or accredited by the appropriate state agency, to avoid exposure to asbestos fibers.

The diseases associated with asbestos are based upon the amount(s) of exposure and the length(s) of exposure. The period of time it takes to develop or show signs of asbestos-related disease is referred to as the "latency period". The latency period for asbestos related diseases can range from 10 to 40 years. This is something to keep in mind if children have been exposed to an unknown amount of asbestos fibers. There is also a "synergistic" effect associated with exposure to asbestos and smoking that dramatically increases the odds of developing an asbestos-related disease.

The diseases associated with asbestos exposure include:

**Pleural diseases** due to a thickening or scarring of the pleural tissues (tissues surrounding the lungs and lining the chest cavity). Examples of asbestos-related pleural diseases include pleural plaques, pleural effusions, and diffuse pleural thickening.

**Asbestosis** is scarring of the lungs. It is a progressive disease that leads to shortness of breath and a dry cough.

**Lung cancer** is responsible for the largest number of deaths associated with asbestos exposure.

**Mesothelioma** is a rare and fatal form of cancer that occurs in the lining of the lungs or the chest and other pleural surfaces, such as the pericardium and the peritoneum.

**Other rare cancers** such as laryngeal, kidney, and gastrointestinal cancer may be associated with ingestion of asbestos fibers.

**Asbestos "warts"** may develop in individuals who have had asbestos fibers enter the skin tissue, usually on their hands or arms. Individuals have not been known to develop cancer from this type of asbestos exposure.

How common are asbestos-related diseases in North Carolina? Data was collected between the years of 1998 and 2002 to compare the number of asbestos claims filed versus the number of deaths associated with asbestos in North Carolina. The North Carolina Industrial Commission averaged 902 asbestos claims filed for each year. All of the cases were documented as work-related. North Carolina Center for Health Statistics reported an average of 16 asbestosis deaths and 43 mesothelioma deaths for each of the years. The number of lung cancer deaths due to asbestos exposure is unknown.

People are often exposed to asbestos fibers, often after asbestos has been accidentally disturbed. Considering the amount of exposure, the length of exposure, the latency period, and possibly synergistic effect, it is prudent to consult a physician. A physician will usually recommend a base-line medical screening. This may include a medical questionnaire, physical examination, chest X-ray and a pulmonary function test. Periodic follow up may also be recommended.

For additional information on state and federal asbestos regulations, or a listing of North Carolina Accredited Asbestos Inspectors, contact the North Carolina Health Hazards Control Unit (HHCU) at (919) 733-0820. ▲

## Introduction to Communicable Disease Investigation and Surveillance in North Carolina

*Prepared by Kathy Dail, RN Med, Nurse Epidemiologist, General Communicable Disease Control Branch*

The General Communicable Disease Control Branch is now offering a **new course**! ***Introduction to Communicable Disease Surveillance and Investigation in North Carolina*** is a non-credit, online short course designed to enhance the public health capacity and response of county health departments by focusing on reportable diseases, the role of surveillance, and outbreak investigations. The primary target audience is the communicable disease nurse at the local health department. However, nurse supervisors, health directors and others who are or would be directly involved in communicable disease surveillance and outbreak response will also find this course useful.

The CD course was developed with assistance from UNC's *N.C. Center for Public Health Preparedness* as a good-faith effort because of the potential for offering this course in other states that they serve (Virginia, Tennessee, South Carolina).

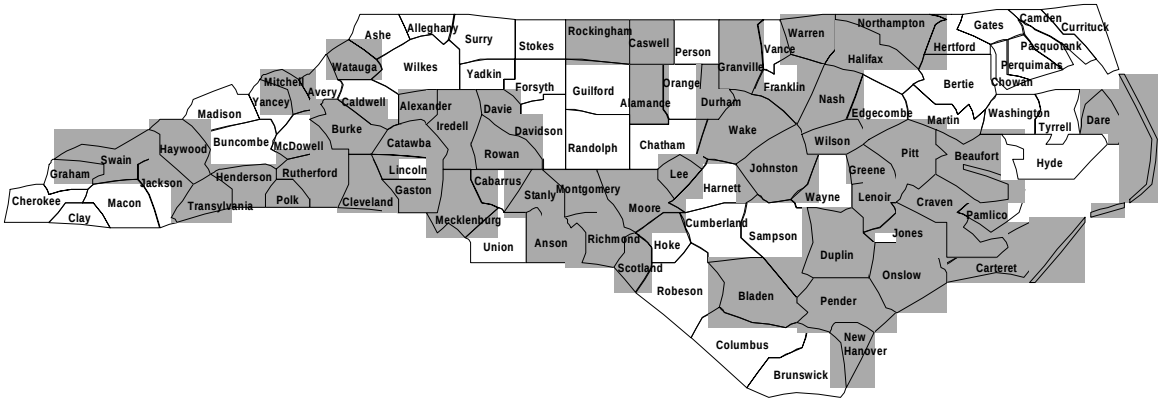
Eighty participants are currently enrolled, representing 47 counties. Course faculty are thrilled with the interest in the course and committed to making sure that the content is relevant and current. Continuing education credit is available and there is no course fee.

Offered three times a year (fall, spring, and summer), the course lasts 15 weeks, 14 of which are completed online. The 15th week consists of a two-day, interactive classroom experience where participants will demonstrate their skills as communicable disease nurses. The content includes:

- **Foundation of Public Health Response to Communicable Disease Surveillance and Investigation**
  - Overview of Epidemiology in Public Health
  - Global Public Health Issues
  - Communicable Disease Surveillance in N.C.
- **Authority for Communicable Disease Surveillance and Investigation**
  - N.C. Laws and Rules
  - Federal Laws and Regulations & Local Ordinances
- **Reportable Diseases in North Carolina**
  - Surveillance Systems: Active and Passive
  - Epidemiological Uses of Surveillance Data
  - The Case Definition (Clinical and Laboratory Components)
  - Case Report Investigations
  - Arboviral and Tickborne Diseases
  - Selected Bloodborne Diseases
  - Selected Enteric Diseases
  - Selected Zoonotic Diseases
  - Food and Waterborne Diseases
  - Selected Bacterial Diseases and Conditions
  - Bioterrorism Agents
  - Influenza and other special outbreaks
  - Record Retention
- **Public Health Response in Communicable Disease Surveillance**
  - Building Your Skills as an EPI Team member
  - Resources for Surveillance
  - Setting up an EPI Team
  - Communication of Public Health Concerns
  - Internal Communication in an Outbreak

For more information or to request an application, contact the General Communicable Disease Control Branch at 919-733-3419. ▲

### CD Course Participants Fall 2004



## Shipwrecks and Lionfish

*Prepared by Ann Chelminski, MD, MPH and Mina Shehee, Ph.D., Occupational and Environmental Epidemiology Branch*

What is red and and white with spikes all over? While this might sound like the beginning of a children's joke, the recent discovery of red lionfish (*Pterois volitans*) off the United States Atlantic coast is no laughing matter. This fish possesses venomous protruding spines that can cause a very painful, but rarely lethal, sting. Native to Indo-Pacific waters, the lionfish is a popular aquarium pet in the United States. According to the National Oceanic and Atmospheric Administration (NOAA), in the past few years these fish have been observed at shipwreck sites along the North Carolina coast. The sighting of lionfish may represent the first successful Pacific marine fish introduction into Atlantic waters.

The lionfish is a member of the family *Scorpaenidae*, a large group of slow-moving, mostly tropical coral reef predatory fish. It is a very unique reef fish averaging ½ - 1 lb. in weight and 6-12 inches in length, with distinctive red, maroon, and white stripes; fanning fins; and protruding spines. Its venom is injected through the spines. For members of the family *Scorpaenidae*, lionfish venom is less potent than that of scorpionfish or stonefish (lethal). The range of the lionfish is tropical (> 70°F) coral reefs in the Indian and Pacific oceans, Red and Arabian seas, and Indonesia. The lionfish can be found from the surface to depths of 50 meters. It is an active hunter and prefers to hide in crevices and caves of the reef-feeding on shrimp, crabs and small fish. The lionfish ambushes its prey by immobilizing or spearing it with its spines. This plumage of spines is also a great deterrent to any potential predators.

A biological introduction is the successful incorporation of a non-native species into a naïve habitat. The introduction may be as a result of natural or anthropogenic processes. Anthropogenic introductions may be due to intentional or inadvertent transport and release of an exotic species, with a range of implications spanning from benign to disastrous. In order for an introduction to be successful, the species must be able to survive, reproduce and disperse. Most introductions fail because of biological and physical limitations of the species.

The lionfish may have been introduced through an accidental release from an aquarium. Most sightings of lionfish in the western Atlantic Ocean have been observed and documented by divers from Florida to New York. North Carolina lionfish sightings have been south of Cape Hatteras. During 2000-2002, 49 lionfish were sighted at wreck and hard-bottom sites off the coast of North Carolina. Most of these observations were of adult lionfish, living at depths of 30 to 40 meters and 40 kilometers off-shore in the Gulf Stream. In August 2004, NOAA researchers surveyed North Carolina coastal waters and found 80 specimens of lionfish. Researchers found both captured juveniles and pregnant females, indicating a successful introduction, during the preliminary stages of this investigation.

Unfortunately, if an exotic species is successfully introduced, it is usually difficult to control or eradicate.

A biological introduction of non-native species, regardless of intent, may have deleterious ecologic effects and may impact ecosystems by altering competition, predation or other types of species interactions. Moreover, some introductions may directly or indirectly affect human health and local economies (e.g., fisheries). Lionfish may successfully out-compete native snapper and grouper fish due to overfishing pressures. No natural predator is known for the lionfish.

In the United States, the lionfish accounts for 13 percent of total aquatic envenomations; only jellyfish (28 percent) and stingray (16%) envenomations are more common. In North Carolina, physicians should be alert if an aquarium owner or offshore diver presents with signs and symptoms of envenomation. The typical wound is a puncture wound; the surrounding tissue may appear bluish. Redness, swelling and warmth of an affected limb may develop. The most common symptom is severe pain, but nausea, shortness of breath and weakness can develop in severe cases. Hypotension has been observed. The pain is usually most intense in the first hour, but may persist for 6-12 hours.

Treatment should begin with the removal of any protruding or embedded spines, as spines can continue to release venom. The wound should then be irrigated. Soaking the site in non-scalding hot (<114$^0$F or 45$^0$C) water for 30-90 minutes is recommended, as heat appears to inactivate or destroy the toxin. Pain is the primary reason victims seek medical care. Oral analgesics should be given and intrave-

*(continued on page 11)*

## Reported Communicable Disease Cases, N.C., January-September 2004 (by date of report)*

| Disease | Year-to-Date (through 3rd Quarter) | | | 3rd Quarter 2004 | Comments / Notes |
|---|---|---|---|---|---|
| | **2004** | 2003 | Mean (99-2003) | | |
| Campylobacter | **480** | 600 | 458 | **239** | |
| Chlamydia, laboratory reports | **21776** | 19247 | 17510 | **7383** | |
| Creutzfeldt-Jakob Disease | **1** | 1 | - | **1** | Note 1 & 2 |
| Cryptosporidiosis | **64** | 34 | 24 | **26** | |
| Cyclosporiasis | **1** | 2 | 0 | **1** | |
| Dengue | **3** | 2 | 2 | **1** | |
| E. coli, Shiga toxin-producing | **24** | 25 | 44 | **18** | Note 3 |
| Ehrlichiosis, Granulocytic | **7** | 0 | 1 | **7** | |
| Ehrlichiosis, Monocytic | **25** | 16 | 10 | **20** | |
| Encephalitis, LaCrosse | **7** | 12 | 7 | **7** | |
| Encephalitis, West Nile | **1** | 3 | - | **1** | |
| Foodborne, C. perfringens | **4** | 2 | 10 | **2** | |
| Foodborne, other | **442** | 33 | 16 | **77** | |
| Foodborne, staphylococcal | **6** | 4 | 24 | **1** | |
| Gonorrhea | **11462** | 11306 | 12898 | **3841** | |
| Haemophilus influenzae | **45** | 35 | 31 | **10** | |
| Hepatitis A | **75** | 72 | 130 | **40** | |
| Hepatitis B, acute | **138** | 110 | 162 | **47** | |
| Hepatitis B, chronic | **519** | 799 | 599 | **140** | |
| Hepatitis B, perinatal | **6** | 1 | - | **3** | Note 1 and 4 |
| Hepatitis C, acute | **10** | 11 | 19 | **4** | |
| HIV/AIDS | **1261** | 1658 | 1274 | **381** | Note 5 |
| Legionellosis | **29** | 30 | 14 | **14** | |
| Listeriosis | **16** | 15 | - | **8** | Note 6 |
| Lyme disease | **92** | 77 | 63 | **43** | |
| Malaria | **17** | 19 | 20 | **8** | |
| Meningococcal disease | **26** | 30 | 37 | **5** | |
| Meningitis, pneumococcal | **23** | 22 | 35 | **2** | |
| Mumps | **4** | 2 | 4 | **2** | |
| Psittacosis | **1** | 0 | 0 | **1** | |
| Q fever | **2** | 1 | 1 | **2** | |
| Rabies, animal | **486** | 617 | 602 | **148** | |
| Rocky Mountain Spotted Fever | **332** | 172 | 138 | **222** | |
| Salmonellosis | **1188** | 958 | 947 | **799** | |
| Shigellosis | **242** | 815 | 340 | **105** | |
| Strepto. A, invasive | **100** | 92 | 85 | **18** | |
| Syphilis, total | **344** | 319 | 672 | **123** | Note 7 |
| Tetanus | **1** | 0 | 0 | **0** | |
| Tuberculosis | **244** | 231 | 265 | **117** | |
| Toxic Shock Syndrome (TSS) | **2** | 1 | 3 | **0** | |
| TSS, Streptococcal | **2** | 2 | 0 | **0** | |
| Typhoid, Acute | **6** | 7 | 3 | **6** | |
| Vanco. Resistant Enterococci | **536** | 443 | 369 | **163** | |
| Vibrio, other | **10** | 4 | 6 | **7** | |
| Vibrio vulnificus | **2** | 5 | 3 | **2** | |
| Whooping cough | **67** | 99 | 71 | **21** | |

*Preliminary data, as of 10/7/2004. Quarters are defined as 13-week periods. Only diseases with cases reported in the year 2004 are listed in the table.

Notes: 1. Not reportable, or not reportable as such, in this entire time period; 2. Became reportable effective 4/1/2003; 3. "E. coli O157:H7" was disease name until 2/15/2003; 4. Coded as such since 2002; 5. Earliest report with HIV infection or AIDS diagnosis; 6. Reportable since 7/2001; 7. Primary, secondary and early latent syphilis.

## Rabies Posters Now Available

*Prepared by Carl Williams, DVM, MA, Public Health Veterinarian and Lee Hunter, DVM, MPH, Public Health Veterinarian, Medical Evaluation Risk Assessment Unit, Occupational & Environmental Epidemiology Branch*

The Veterinary Public Health Program has created three posters (18"x 24" each) about rabies that will be useful to local health care providers when confronted with a possible exposure. The subjects of the posters include:

- Post-exposure rabies prophylaxis
- Evaluation of animal bites for rabies risk
- Pre-exposure rabies prophylaxis

The posters are two-color and printed on heavy stock paper.

The posters help answer the most commonly asked questions about rabies prevention, post-exposure rabies prophylaxis and bite evaluation-questions that you (and we) are asked each day.

You may request one or more copies of any or all of the posters by fax (919-733-9555) or by telephone (919) 733-3410. Additionally, you may contact us by e-mail: vetpublichealth@ncmail.net. Please give us the name of your practice, a complete mailing address and which posters you want sent.

You may also send a request to us at:

Rabies Posters
Veterinary Public Health
1912 Mail Service Center
Raleigh NC 27699-1912 ▲

***(Shipwrecks and Lionfish,*** *continued from page 9)*

nous analgesia may be required. Avoid the use of meat tenderizers and other topical treatments. Tetanus prophylaxis is advised, but antivenom administration is usually not required for lionfish envenomations. Antibiotic therapy is indicated if secondary infection develops.

Avoidance is the key to prevention, so divers and aquarium owners should be made aware of the dangers of lionfish spines. At North Carolina beaches, lionfish envenomations would not be expected in waders or swimmers. However, continental-shelf fishermen may be at risk for exposure to lionfish stings. See the NOAA web site for further information regarding lionfish (http://shrimp.ccfhrb.noaa.gov/lionfish/index.html). ▲

## Employee Recognition: Gloria McLamb Employee of the Quarter

*Prepared by Patsy West, Administrative Assistant, Epidemiology Section*

Gloria McLamb received the Epidemiology Section's Employee Recognition Award for the third quarter of 2004. Ms. McLamb was nominated in the category of Service Excellence.

Ms. McLamb is a highly motivated individual who came to work in July 1992 as the Permits Secretary in the Health Hazards Control Unit of the Occupational and Environmental Epidemiology Branch. On a daily basis, Ms. McLamb interacts with OEE staff, the general public, and members of the regulated community while receiving and processing applications and fees and issuing permits for asbestos removal projects throughout the state. In addition to her busy work schedule, Ms. McLamb makes the time to increase her knowledge of asbestos by attending technical and professional seminars in order to better serve clients. Ms. McLamb is always willing to tackle any new challenge, whether the challenge is large or small. In addition to McLamb's regular duties, she made time to participate in the development and testing of the database system now used by staff and coordinated the documentation of all permitting, accreditation and certification activities of the Health Hazards Control Unit. As an example of Ms. McLamb's dedication to her Unit and Branch, she volunteered to organize and archive more than 35,000 x-rays and associated documents for the N.C. Dusty Trades Program. Ms. McLamb is an inspiration to her coworkers and everyone who knows her because of her willingness to pitch in when there is a need. Her commitment and dedication to a job well done is remarkable.

In addition to receiving the Epidemiology Section's Employee Recognition Award, she will be presented with a gift certificate to a local restaurant from the Epidemiology Section Management Team. ▲

State of North Carolina • Michael F. Easley, Governor
Department of Health and Human Services • Division of Public Health
Epidemiology Section • www.epi.state.nc.us/epi/

Dr. J. Steven Cline, Epidemiology Section Chief
Managing Editor, J. Steven Cline
Layout and Typesetting, Angela Green

Epidemiology Section Office (919) 733-3421
General Communicable Disease Control Branch (919) 733-3419
HIV/STD Prevention and Care Branch (919) 733-7301
Occupational and Environmental Epidemiology Branch (919) 733-3410
State Laboratory of Public Health (919) 733-7834
**Rabies Emergency Number - Nights, Weekends, Holidays (919) 733-3419**
**EMERGENCY NUMBER - Nights, Weekends, Holidays (919) 733-3419**

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